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Risk Behaviors and Public Attitudes Toward Prescription Painkillers: A Cross-Sectional Study in Saudi Arabia

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Abstract **Background:** Prescription painkillers are widely used to manage pain, but their potential for misuse and dependency presents significant public health challenges. Understanding public attitudes and behaviors is essential for guiding preventive strategies. **Objective:** To explore the relationship between public attitudes toward prescription painkillers and the perceived risk of dependency, including behavioral patterns and demographic influences. **Methods:** A cross-sectional survey of 877 participants in Saudi Arabia was conducted. Data on demographics, painkiller use, awareness of side effects, and dependency-related behaviors were collected. Descriptive statistics and Chi-Square tests ($p<0.05$) were used to assess associations. **Results:** The majority of participants (92.1%) had previously been prescribed painkillers. Among them, 41.4% used painkillers occasionally, and 8.7% used them regularly. Notably, 16.9% admitted exceeding recommended doses, and 37.6% perceived themselves at risk of dependency. Awareness of addiction risk did not differ significantly by gender ($p = 0.41$) or education ($p = 0.40$). The sample was predominantly male (68.7%) and aged 18-25 (52.5%). **Conclusion:** Despite a general awareness of side effects, risky behaviors persist. Educational interventions and stronger communication between providers and patients are needed to address misconceptions and reduce misuse.

Key Words Prescription Painkillers, Dependency, Attitudes, Saudi Arabia, Medication Misuse, Cross-Sectional Survey

INTRODUCTION

Prescription painkillers are widely used to manage both acute and chronic pain; however, their misuse and potential for dependency have become pressing public health concerns [1]. In Saudi Arabia, despite regulatory efforts, issues such as self-medication, limited awareness, and cultural attitudes toward pain management contribute to unsafe use patterns [2]. While global studies have explored prescription drug misuse, there is a lack of localized data on how the public perceives and uses these medications.

Previous research highlights considerable variation in public attitudes toward prescription opioid use across different demographics and regions. For example, some studies have shown that gender, age, and prior exposure to medications influence perceptions of risk, while others point to the role of education and socioeconomic status in shaping awareness and behaviors [1,2].

Despite the availability of regulatory tools such as Prescription Drug Monitoring Programs (PDMPs), evidence regarding their long-term effectiveness remains mixed. While some studies suggest these systems enhance prescribing oversight and patient education, others report limited impact on actual prescribing behaviors and patient outcomes [3]. In particular, the disconnect between policy implementation and public understanding remains a concern. Additionally, studies focusing on clinical populations-such as chronic pain sufferers or individuals with comorbid substance use-have identified high rates of opioid misuse,

often driven by factors such as inadequate pain control, poor communication, and limited access to alternative therapies [4]. However, most of this research has been conducted in Western contexts, with limited attention to public perceptions in the Middle East, particularly Saudi Arabia.

Few studies have integrated both attitudinal and behavioral data to explore the general population's role in painkiller misuse. This creates a gap in understanding, especially in regions where medications are readily available without rigorous oversight.

This study aims to address that gap by examining public perceptions, usage patterns, and perceived dependency risks associated with prescription painkillers in Saudi Arabia. By doing so, it seeks to provide locally relevant data to inform national awareness efforts and safer prescribing policies.

The study employs an exploratory, cross-sectional design.

The objectives are to:

- Assess patterns of painkiller use
- Evaluate awareness of side effects, particularly addiction risk
- Identify indicators of misuse, such as exceeding prescribed dosages or expressing the need to cut down
- Examine how demographic variables influence perceptions of dependency

Hypotheses

- H1: There is a significant association between attitudes toward prescription painkillers and perceived risk of dependency
- H2: Demographic factors, such as gender and education, significantly influence awareness of addiction risk

METHODS

Study Design

This study employed a cross-sectional, questionnaire-based design to explore public attitudes, usage patterns, and perceived dependency risks related to prescription painkillers in Saudi Arabia. The research was exploratory in nature and conducted via an online survey distributed over four weeks.

Questionnaire Development

The questionnaire was developed based on prior literature in opioid use, medication safety, and public health behavior research [1-4]. It was structured into five core domains: (1) demographic information (age, gender, education), (2) painkiller prescription and usage patterns, (3) awareness of side effects, especially dependency, (4) risk behaviors such as exceeding dosage or the desire to cut down and (5) Perceptions and preventive attitudes toward dependency.

The instrument was initially drafted in English, then translated into Arabic by two bilingual public health professionals to ensure linguistic and cultural relevance. A back-translation process was used to verify accuracy. The Arabic version was pilot tested on 25 individuals, and revisions were made to improve clarity and comprehension.

Data Collection and Ethical Considerations

Data were collected anonymously through a secure online form. Only one response per device was allowed to minimize duplication, although self-reporting bias and non-response bias remain limitations. Participation was voluntary, and informed consent was obtained at the survey's start. Ethical approval was secured from the relevant institutional review board prior to the study.

Data Analysis

Quantitative data were analyzed using IBM SPSS Statistics (Version 26). Descriptive statistics (frequencies, percentages) were used to summarize demographic characteristics and key study variables. Chi-Square tests were conducted to evaluate associations between demographic variables (e.g., gender, education) and awareness of addiction risk. A significance threshold of $p<0.05$ was applied.

While the Chi-Square test was suitable for the categorical data, no multivariate or regression analyses were conducted. Additionally, effect sizes and confidence intervals were not reported, which limits the depth of interpretation. These limitations are acknowledged and discussed in the results.

RESULTS

The demographic characteristics of the respondents indicate that the largest proportion falls within the 18-25 age group (n = 461, 52.51%), followed by the26-35 age group (n = 133, 15.15%), 46-55 age group (n = 117, 13.33%), 36-45 age group (n = 115, 13.10%) and the smallest proportion in the under 18 category (n = 37, 4.21%). These findings suggest that younger individuals constitute the majority of the sample.

Regarding gender distribution, 68.68% of respondents are male (n = 603), while 31.21% are female (n = 274), highlighting a gender imbalance in participation. In terms of educational attainment, the majority of respondents hold a Bachelor's degree (n = 612, 69.70%), while 16.86% (n = 148) have a Master's degree, and 5.35% (n = 47) hold a PhD or higher. These statistics suggest that the surveyed population is relatively well-educated, which may influence their knowledge and attitudes toward prescription painkillers (Table 1).

A significant proportion of respondents (n = 809, 92.14%) reported having been prescribed painkillers at some point, whereas only 7.74% (n = 68) have never received such prescriptions. This suggests that exposure to prescription painkillers is common within this population.

When examining usage patterns over the past year, 41.42% (n = 363) of respondents reported using painkillers once or twice, while 35.26% (n = 309) indicated that they have taken them several times. Additionally, 14.71% (n = 129) stated they have never used painkillers, and 8.68%

(n = 76) reported regular use (at least once a month). The considerable proportion of individuals using painkillers frequently raises concerns about potential misuse and dependency, emphasizing the need for proper patient education on responsible medication use (Table 2).

Respondents demonstrated varying awareness of the potential side effects associated with prescription painkillers. The most commonly recognized side effects included dependency or addiction (n = 125, 14.24%) and drowsiness (n = 107, 12.19%), indicating that a notable portion of the population understands the risks associated with these medications.

When asked about their perceived risk of developing a dependency on prescription painkillers, 37.59% (n = 330) of respondents believed they were likely to become dependent, whereas 28.59% (n = 251) considered it unlikely. A further 14.81% (n = 130) expressed a neutral stance on the issue, suggesting that a substantial proportion of the population recognizes the potential for dependency but that perceptions of risk remain varied (Table 3).

Self-reported behaviors regarding painkiller consumption revealed that 16.86% (n = 148) of respondents admitted to exceeding the recommended dosage of their prescribed painkillers, while 83.03% (n = 729) reported adhering to the prescribed limits.

Additionally, 50.23% (n = 441) of respondents stated they had felt the need to cut down on their painkiller use, compared to 49.66% (n = 436) who had not. These findings suggest that concerns about dependency are prevalent among a significant proportion of the sample (Table 4).When asked about actions they would take if they felt they were developing a dependency on painkillers, the most common response was to consult a doctor or pharmacist (n = 475, 54.1%). Additionally, 29.5% (n = 259) of respondents indicated that they would stop using painkillers immediately, while 7.97% (n = 70) stated they would take no action as seen in Figure 1.

In terms of preventative measures, respondents identified the following as key factors in reducing the risk of dependency on prescription painkillers: strict regulation and pharmacy control (n = 175, 19.93%), public awareness campaigns (n = 111, 12.64%), and proper patient education about side effects (n = 92, 10.48%). These findings highlight the importance of both systemic regulation and individual education in mitigating the risk of dependency (Figure 2).

Chi-Square Test for Awareness of Addiction Risk

The Chi-Square test was conducted to examine the association between gender and education level with awareness of addiction as a side effect of prescription painkillers. The results of the Chi- Square test indicate that there is no statistically significant relationship between gender and awareness of addiction as a side effect of prescription painkillers (p-value = 0.4129). Since this value is greater than the standard significance threshold of

Table 1: Demographic Analysis

Category	Response	Frequency (F)	Percentage
Age	18-25	461	52.51%
	26-35	133	15.15%
	36-45	115	13.10%
	46-55	117	13.33%
	Under 18	37	4.21%
Gender	Male	603	68.68%
	Female	274	31.21%
Education level	Bachelor's Degree	612	69.70%
	Master's Degree	148	16.86%
	PhD or Higher	47	5.35%

Table 2: Painkiller Prescription & Usage

Response	Frequency (F)	Percentage
Have you ever been prescribed painkillers?		
Yes	809	92.14%
No	68	7.74%
How often have you used prescription painkillers in the past year?		
Once or Twice	363	41.42%
Several Times	309	35.26%
Never	129	14.71%
Regularly (at least once a month)	76	8.68%

Table 3: Side Effects & Dependency Risks

Side Effects/Perceived Risk	Frequency (F)	Percentage
Which of the following do you believe can be side effects of prescription painkillers?		
Dependency or Addiction	125	14.24%
Drowsiness	107	12.19%
How likely do you think it is for you to become dependent on painkillers?		
Likely	330	37.59%
Unlikely	251	28.59%
Neutral	130	14.81%

Table 4: Risk Behaviors (Exceeding Dosage & Cutting Down Use)

Risk Behavior	Response	Frequency (F)	Percentage
Have you ever exceeded the recommended dosage?	Yes	148	16.86%
	No	729	83.03%
Have you ever felt the need to cut down on painkillers?	Yes	441	50.23%
	No	436	49.66%

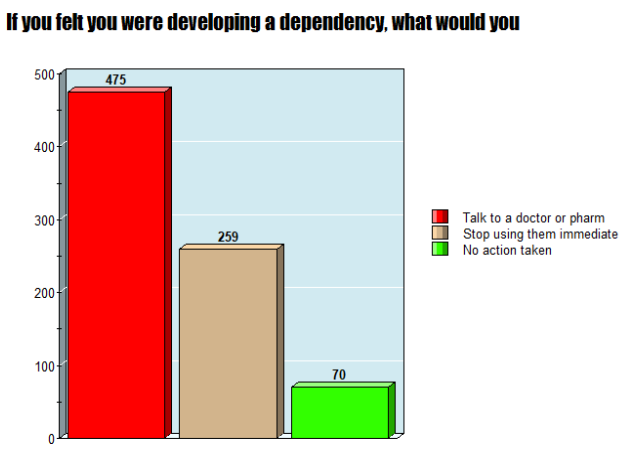

Figure 1: Actions Taken When Developing a Dependency on Prescription Painkillers

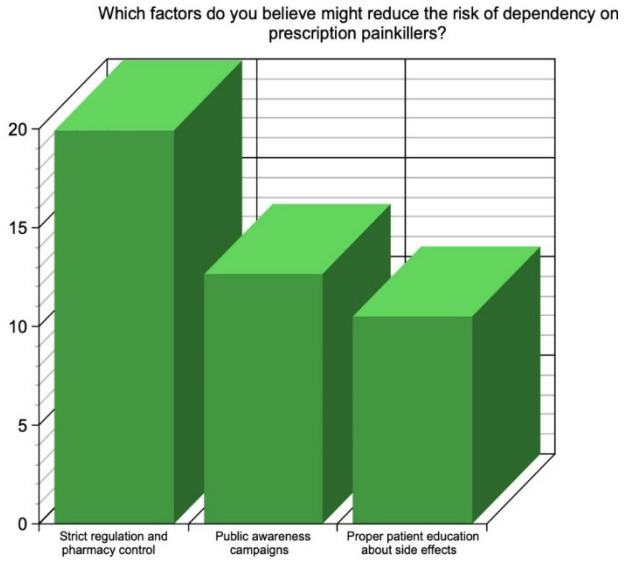

Figure 2: Perceived Factors for Reducing Dependency Risk on Prescription Painkillers

Table 5: Chi-Square Test Results for Awareness of Addiction Risk

Variable	Chi-Square (χ^2)	p-value	Degrees of Freedom (df)	Significance
Gender vs. Awareness of Addiction Risk	1.769	0.4129	2	Not Significant
Education vs. Awareness of Addiction Risk	6.164	0.405	6	Not Significant

0.05, we fail to reject the null hypothesis. This suggests that awareness levels regarding addiction risk are similar among male and female respondents, indicating that gender does not play a determining role in recognizing addiction as a potential consequence of painkiller use.

Similarly, the Chi-Square test results for education level and awareness of addiction risk show no significant association (p-value = 0.4050). Since this value exceeds 0.05, we conclude that awareness of addiction risk does not significantly differ across various educational backgrounds. This finding implies that regardless of whether a respondent holds a Bachelor's degree, Master's degree, or a PhD, their level of awareness about the addictive potential of painkillers remains largely the same (Table 5).

DISCUSSION

This study provides insight into public attitudes toward prescription painkillers in Saudi Arabia, highlighting a moderate level of awareness about addiction risks, yet notable engagement in potentially unsafe practices such as exceeding prescribed doses. The finding that 16.9% of respondents reported taking more than the recommended amount is consistent with earlier studies showing gaps between knowledge and behavior in medication use [1,2].

Interestingly, 37.6% of participants perceived themselves at risk of becoming dependent. This self-awareness contrasts with studies in clinical populations, where dependency is often underreported due to stigma or denial [3]. However, the relatively low percentage (14.2%) who specifically recognized addiction as a side effect suggests a disconnect between general concern and specific pharmacological understanding. This mismatch reflects patterns seen in other contexts where public health campaigns raise general awareness but fail to convey actionable or nuanced knowledge [4].

One unexpected result was the lack of significant association between awareness of addiction risk and both gender and education level. Previous research often suggests that higher education is associated with better medication literacy [5], yet our findings suggest that general awareness may have become more evenly distributed across demographic groups, possibly due to widespread exposure through media or national health campaigns.

Cultural and systemic factors likely influence these attitudes. In Saudi Arabia, easy access to medications, the use of over-the-counter painkillers, and social norms around enduring or minimizing pain may affect how individuals perceive the need for medical consultation or dosage control. Additionally, limited discussions between healthcare providers and patients regarding painkiller risks-often due to time constraints or discomfort with the topic-may hinder effective risk communication.

The study also sheds light on help-seeking behavior. While most participants reported they would consult a doctor or pharmacist if they noticed signs of dependency, a considerable proportion would either stop medication abruptly or do nothing. These responses reflect not only gaps in knowledge but also possible mistrust or limited access to healthcare advice. Studies from other regions have similarly identified fear of stigma, lack of provider engagement, and poor continuity of care as barriers to safe pain management [6].

In broader health settings, especially in under-resourced or rural areas, the risk of misuse may be exacerbated by the absence of monitoring systems like PDMPs or limited access to trained providers. In these settings, educational campaigns alone may not be sufficient-system-level changes and

community-based support systems are essential to address behavioral risks.

Overall, this study reinforces the need for culturally tailored interventions that go beyond raising awareness to include patient engagement, healthcare provider training, and regulatory mechanisms. Integrating painkiller safety into broader medication literacy efforts will be critical to mitigating misuse and ensuring appropriate use.

CONCLUSIONS

This study explored the relationship between public attitudes and behaviors surrounding prescription painkiller use and the perceived risk of dependency in Saudi Arabia. While general awareness of potential side effects-such as addiction-was present among many participants, this knowledge did not always translate into safe usage practices. Risk behaviors, including exceeding dosage and hesitancy to seek professional help, remain prevalent.

The absence of significant differences in awareness across gender and education levels suggests that misinformation and risky behaviors are widespread and not confined to specific subgroups. These findings highlight a persistent gap in public understanding and behavioral response that extends beyond knowledge alone.

To address this issue, interventions must move beyond traditional awareness campaigns. There is an urgent need for targeted, culturally relevant education, integrated counseling by healthcare providers, and stronger regulatory oversight. Moreover, training programs for pharmacists and physicians should emphasize communication strategies that empower patients to use medications safely and seek support when needed.

Given Saudi Arabia's ongoing health sector reforms and the increasing visibility of medication-related harm, this research offers timely evidence to guide national efforts in medication safety. Future studies should focus on high-risk populations, longitudinal trends, and the development of validated tools to monitor painkiller misuse in the general population.

By strengthening the bridge between knowledge and practice, Saudi Arabia can advance safer prescribing environments and foster responsible medication behaviors.

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